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SYSTEMATIC NOTES ON BEETLES OF THE SUBFAMILY DYNASTINAE, WITH DESCRIPTIONS OF A FEW NEW SPECIES IN THE BRITISH MUSEUM COLLECTION (COLEOPTERA)

By Gilbert J. Arrow

(*British Museum (Natural History)*.)

With Plate 1.

[Read 18th November, 1936.]

The preparation of a catalogue of this important group has made it necessary to consider the principles to be adopted and, more particularly, to what extent the numerous new generic names introduced since the publication in 1869 of Gemminger and Harold, *Catalogus Coleopterorum*, **4**, often by the partial dismemberment of older genera, can be reconciled with the older names. In the present paper I have given my reasons for regarding as synonyms a good many of the names, of the late T. L. Casey in particular, and I have taken the opportunity of describing various forms which in the course of the work have been found to be without names.

The types are in the British Museum Collection.

In introducing a recent paper dealing with the Lucanidae I laid down the principle that, except in certain peculiar cases, genera ought not to be based upon features confined to one sex. In accordance with that principle I proposed to suppress a number of generic names in use in the group. In the Dynastinae, as in the Lucanidae, a considerable number of generic names have been introduced in which the distinctive features are found in the male alone. A large proportion of the Dynastid genera proposed by Casey in his 1915, *Memoirs on the Coleoptera*, **6**, are of this character and such names I consider are best allowed to lapse, so rendering it possible to assign to a genus any specimen of either sex. Apart from the practical inconvenience of being unable to determine female specimens unaccompanied by males, the inconstancy of secondary sexual characters and their liability to disappear in small specimens of a species render them peculiarly unsuitable for the purpose.

For example, *Ligyrodes* Casey is distinguishable from *Ligyrus* only by the form of the front tarsal claws of the male, for " a different general habitus," a phrase much used by Casey, evidently implies a difference too vague for definition and has no diagnostic value.

Anastrategus Casey, again, was devised for those species of *Strategus* in which the male is without horns and, although not recognisable in the female sex, is actually referred to a different Tribe from *Strategus*.

Pseudaphonus Casey I regard for the same reason as a synonym of *Cheiroplatys*.

The eight species constituting the genus *Megasoma*, well known as including the largest of existing insects, is said by Casey (1915, *Memoirs on the Coleoptera*, **6** : 259) to include " several genera." As he apparently had a personal acquaintance with only two of the species, he confined himself to diagnosing only two of these genera, *Megasoma* and *Megasominus*, the differential features of which

are those of the males of those two species and are not shared with any of the other six. Unless the species of the present are to become the genera of the future the genus *Megasominus* can hardly be defended.

The difficulties of the cataloguer become greatest in dealing with the various so-called genera into which Casey has divided the large genus *Cyclocephala*. The majority of the species are found in South America and, although, as he proposed to restrict it, most of them are excluded, few of these are or can be distributed among his new genera. He has admitted that these are based largely upon features of the male alone and the acceptance of such names as *Diapatalia*, *Spilosota*, *Ochrosidia*, *Dichromina*, etc., seems to me to involve the replacement of order by disorder. *Dichromina*, which its author considered to be " one of the more distinct and specialised " of his genera, by reason of two features, *viz.* the widely diverging branches of the inner front claw of the male and the very small tarsi, reveals his inadequate knowledge, for there is a group of species (*C. laminata*, *paraguayensis*, etc.) in which the females conform exactly to his diagnosis, while the males, being without the diverging claw, must be excluded from it. Even the name *Aclinidia*, proposed for one of the most isolated species (*C. castanea* F.) depends upon features of the male only and in my opinion is redundant.

It is unfortunate that in the case of one genus which appears to be a sound and useful one Casey has used a name which is not available, *Parachalepus* having been used by Baly in 1885. Casey divided his genus into two subgenera, which he called *Parachalepus* in sp. and *Chalepides*, and it seems best to adopt the latter name as that of the genus. The two subgenera of *Chalepides* are—

A. *alliaceus* group.
B. *barbatus* group.

This method of designation appears to me to have decided advantages over the use of subgeneric names (see 1935, *Proc. R. ent. Soc. Lond.*, **10** : 34). The latter are often a hindrance rather than a help to systematic work and, although a large number are of necessity recorded in my catalogue, they are in my opinion without value. Such names are constantly quoted instead of the generic name, causing confusion, they are frequently based upon characters whose presence or absence is significant only in the particular species studied by their author and, although pleasing to him, may be a nuisance to workers in another field. Where characters can be found which are sufficiently definite to diagnose a new genus a new name is justified. When this is not the case, I consider a new name unnecessary and undesirable.

It may, I think, be said that a good deal of Casey's systematic work was regarded by himself as tentative in character. On page 180 of the Memoir in question he says, in diagnosing at considerable length a number of so-called species referred to *Ligyrodes*, " the various taxonomic forms are rather well differentiated and most of those announced below are probably true species." This clearly shows that he was quite prepared for the abandonment of many of his names to synonymy. How large a proportion should be rejected only the careful examination of his types at Washington will reveal, but his method appears to have been to give a new name to every specimen not in all respects typical of any known species, making no allowance for variation, age and wear or abnormality.

Casey also shows a disposition to be greatly influenced, in separating species and genera, by their occurrence in what he regards as different faunistic

areas. It is generally recognised that the geographical range of genera varies enormously and, since it provides the evidence for the solution of many important problems, it is obviously essential that genera, although their limits in many, perhaps in most, cases must be arbitrarily fixed, should in all cases be natural groups, that is that they should be distinguished by anatomical characters alone. Geographical considerations should be allowed no part in the determination of generic limits. Above all, relationships between forms inhabiting different faunistic areas, especially when of an unexpected kind, should not be concealed by the unnecessary use of different names, but, on the contrary, emphasised. It even appears desirable to allow a little more diversity within the limits of a genus composed of species closely related, although inhabiting different regions, than might be considered allowable when all belong to a single confined area.

The very striking and significant affinity between the Tropical American and Australian species united by H. W. Bates under the name of *Cheiroplatys* was rightly emphasised by that eminent Entomologist, who pointed out that no generic distinction had been discovered. Casey has criticised this procedure and again separated the American forms under the name *Orizabus*, suppressed by Bates. The latter referred to the agreement in mouth-structure, without specifically mentioning the maxillae. Casey suggests that the form of the maxillae may justify separation, but it is evident that he made no dissections and had no Australian examples for comparison. Whatever the explanation may be, various genera in different families of beetles are found only in the Neotropical and Australian Regions, e.g., *Syndesus*, in the LUCANIDAE, *Laemosaccus*, in the CURCULIONIDAE, *Heteronyx*, in the MELOLONTHIDAE. The genus *Cheiroplatys* is another of these interesting cases and nothing is gained by obscuring the fact by the use of two generic names where no distinctive feature has been found.

It was evidently on geographical grounds alone that a new name *Dyscinetus ebeninus* was devised by Casey for the Central American specimens referred by Bates to *D. picipes* Burm. He refused to admit the identity of *D. hydrophiloides* Burm. (South Brazil) with the Antillean *D. barbatus* F., and separated another form, *rhomboidalis* Casey, for reasons of colour and size which are quite inadequate when a considerable series is compared. It would perhaps be possible to recognise various local races of this wide-ranging species, but unless better characters can be found than those given, I am unable to see the advantage of multiplying names. In other genera also it is possible that forms to which new specific names have been given by Casey may prove to be actually local races, but this can only be established by a careful study of long series of specimens. The usefulness of attempting to define and name the slight variations in a great continental area of wide-ranging species, of which the materials for an even approximately complete study have never been brought together, is rather more than doubtful.

As an example of his work may be cited Casey's subdivision of the long-familiar *Strategus antaeus* F. into a number of " species " distinguished by depth of colour, sharpness of the external mandibular teeth, and other features affected by wear and degree of maturity. Of these " species " I have seen examples of his *Strategus atrolucens* and *septentrionalis* and these, and in my opinion also his *S. divergens* and *pinorum*, must be regarded as simple synonyms of *Strategus antaeus* F.

Professor Kolbe published in 1910 a dismemberment of the genus *Phileurus* similar to that attempted by Casey for the genus *Cyclocephala*, with the con-

sequent introduction of numerous new generic names. Some of Kolbe's genera rest upon very slight foundations, but in this case all the species were reviewed and no difficulty therefore arises for the cataloguer.

The genera *Archophileurus* and *Amblyphileurus* of Kolbe are linked together by an intermediate species to which I have here given the name of *Archophileurus darwini*, and *Periphileurus* Kolbe, distinguished from the two genera just mentioned only by the deep thoracic groove and sharp hind angles to the thorax, is similarly connected by the common species, *Archophileurus ovis* Burm., and in my opinion cannot be maintained. I have therefore united all these under the first name *Archophileurus*.

Lacordaire has remarked (1856, *Gen. Coleopt.* **3** : 446) that the genus *Augosoma* Burmeister (synonymous with *Archon* Kirby), containing only a single African species, is hardly distinct from the Oriental *Xylotrupes* Hope. Of the very slight differential features enumerated the most tangible is the spine-like prolongation of the basal joint of the middle and hind tarsi. A similar spine-like prolongation is found in *Endebius florensis* Lansb. (in the hind legs only in the ♂, but in the four posterior legs of the ♀), an insect inhabiting the Malayan island of Flores, which is so closely related to the typical *Xylotrupes* that, except for the previous separation of the African form, the creation of a third genus would probably not have been contemplated. This insect, by its simple blunt mandibles and fewer maxillary teeth also, shows itself a link with the African form and it seems to me impossible to retain three generic names for three types so closely interrelated. Of the three generic names the oldest is *Archon* Kirby, described in 1825 (*not* 1840, as stated in Gemminger and Harold, 1869, *Cat. Coleopt.*, **4** : 1266). The occurrence in West Africa of an isolated species linked by another in the E. Indian island of Flores to forms distributed throughout the Oriental and Australasian regions, is a remarkable phenomenon. But in Tropical America is found another little group of species, constituting the genus *Dynastes*, equally closely related to the African and Oriental species, and distinguished, in my opinion, by no feature of importance. The mandibles and maxillae alone show slight differences of a similar kind to those distinguishing the Old World forms. It appears to me, therefore, that it accords best with the actual affinities of these insects to place them all in a single genus, *Dynastes*, which will form a fairly well-defined entity, the allied genera, such as *Chalcosoma*, *Golofa*, etc. having features in the mouth-organs, feet, etc. of a distinctly different character.

The insect which has been long familiar under the name *Xylotrupes gideon* L. is very abundant and appears to be found in almost every one of the multitudinous islands of the Indian Ocean and S. Pacific, as well as over a large part of the Asiatic mainland. Over this vast area it shows a marked tendency to develop local differences, most easily noted in the forms assumed by the horns of the males. As these horns are subject to very great individual variation and may be almost entirely absent in small specimens, such differences, being frequently absent, cannot be used diagnostically. Many names have been given by Thomson, Schaufuss and Minck to these local forms. All are no doubt incipient or potential species and, if the communities have been isolated for long periods, some may be quite distinct and separate species. But as the wide area of dispersal shows, this insect is a good traveller, and not, like more sedentary kinds, easily isolated. The acceptance of these island races and local forms as species has the unfortunate consequence of leaving without a specific name a very large number of other equivalent forms, the actual differential characters of which cannot be determined until series of each, including both sexes and

large and small forms of male, have been brought together. Since the first object of all systematic work is to provide the means of conveniently designating any organism when it is desired, I have treated all these numerous forms provisionally as subspecies of a variable wide-ranging species, *Dynastes gideon*, except where comparison of an adequate series of examples has provided unquestionable evidence of a well-defined and separate species. For instance, the form described by Prell as *Xylotrupes meridionalis*, which is abundant in Ceylon, seems to be a well-defined species and is probably completely isolated, for, although found also in Southern India, its genus is apparently absent from the central plains.

To illustrate the illusory results obtained by attempting to base species upon the sexual features without adequate series of examples, I may mention that of all these insects the males with the longest and most strongly forked thoracic horns in the British Museum collection are found amongst a series from the island of New Britain or New Pomerania. Three male specimens, presumably of this race, served as the types of *Xylotrupes lamachus* Minck, diagnosed by the author as having short horns with very short and poorly developed terminal points. In every horned species examples with poorly developed horns are more numerous than those of full development and until very long series have been collected it is not possible to determine what degree of development is characteristic.

Cyclocephalini.

Cyclocephala vinosa sp. n.

Tota rufa, corpore subtus pedibusque inclusis, ovata, nitidissima, pedibus modice gracilibus; clypeo brevi, semicirculari, leviter transverse ruguloso, fronte minute punctato; pronoto toto marginato, impunctato, lateribus fortiter rotundatis, angulis posticis nullis; elytris vix perspicue punctatis; pygidio parce et minute punctato, punctis pilis brevibus erectis instructis:

♀, tibia antica acute tridentata, elytrorum margine externo medio leviter ampliato.

Long. 17 mm.; lat. max. 9 mm.

Jamaica: Mandeville (*C. C. Gowdey*, Sept.).

In addition to the specimen from Mandeville the Museum contains a second specimen (the type) taken by *A. H. Ritchie* without precise locality. Both are females and have three very sharp teeth to the front tibia and a slight dilatation of the elytra almost at the middle of the outer margin. The latter widens and again narrows gradually without forming an angle or interrupting the curvature of the side.

This species shows some approach to the genus *Ancognatha*, but the clypeus is very short and the mandibles very blunt.

With the exception of the widely distributed *C. signata* Drury, the Cyclocephalas of the West Indian islands do not seem to be found upon the mainland of America, and most are confined to one island. Two have been recorded from Jamaica, *C. cerea* and *tetrica* of Burmeister. *C. vinosa* is a third species from that island. It is peculiar for its uniform rich red colour and its very glossy surface, which upon the upper side is almost entirely devoid of punctures, with the exception of very fine ones upon the head and pygidium and vestiges of an almost obliterated puncturation upon the elytra. It is rather robust in shape, with the head broad and the clypeus short and semicircular, with a feeble transverse rugosity, the forehead lightly and evenly punctured between the eyes.

The pronotum is entirely margined, the sides evenly rounded, including the obliterated hind angles. The pygidium has fine scattered punctures, which bear pale erect hairs.

Cyclocephala laevis sp. n.

Pallide flava, tarsis vittisque dorsalibus brunneis, pronoto vittis duabus longitudinalibus discoidalibus, singulo elytro vittis tribus obliquis ornato, his nonnunquam deficientibus; elongata, supra laevis, pedibus gracilibus, clypeo sat producto, antice rotundato, fronte minute punctato; pronoto parce et minutissime punctato, lateribus bene arcuatis, antice contractis, angulis posticis obsoletis, basi subtiliter marginato; elytris minute punctatis, punctis partim biseriatis; pygidio parum dense aut longe fulvo-setoso; antennis brevibus:

♂, clypeo longo, fere laevi, opaco, elytris opacis, pedibus anticis crassis, tibia minute bidentata, ungue majori longo, integro:

♀, clypeo leviter ruguloso, elytrorum lateribus paulo ante apicem obtuse angulatis et callosis.

Long. 12–13 mm.; lat. max. 6·5 mm.

San Domingo: La Romana, Gubimati (July).

A specimen of each sex was taken by *Mr. H. E. Box* in 1925.

C. laevis is nearly related to the Jamaican *C. tetrica* Burm. and has almost the same colour and pattern. As in that species, the elytra of the male are dull and those of the female shining. It also bears a close resemblance to the common *C. signata* Drury, the elytra of which are shining in both sexes. The upper surface, especially that of the head and prothorax, is smoother than in either of those species. The punctures of head and thorax are exceedingly fine and scanty and those of the elytra rather fine. The pygidium is clothed with pale erect hair in both sexes, not in the male only as in the allied species. The elytra of the female have an obtusely angular thickening of the outer edge, situated much farther back than in *C. signata*. This is not found in *C. tetrica*. The front tibia of the male, as in *C. signata*, bears only two very small terminal teeth and the inner front claw is long and not cleft.

Cyclocephala insulicola sp. n.

Rufa, corpore subtus pedibusque flavibus, capite postice pronotoque nigris sed hujus lateribus pallidis; modice lata, parum elongata, tibiis tarsisque gracilibus, corpore supra nitido, elytris postice setis pallidis nonnullis sparsutis, oculis sat magnis, clypeo angusto, minute ruguloso, antice leviter rotundato, fronte minute haud dense punctato; pronoto minute sat parce punctato, lateribus antice fortiter convergentibus, rectis, postice late rotundatis, angulis posticis nullis; elytris sat crebre haud fortiter punctatis, punctis nonnullis biseriatis; pygidio crebre minute punctato, subopaco:

♂, tibia antica tridentata, dentibus 2 apicalibus valde approximatis, tertio obtuso, tarsorum anticorum ungue interno longo, apice vix perspicue fisso, clava antennali longa.

Long. 13 mm.; lat. max. 7 mm.

Leeward Is., W.I.; Guadeloupe.

Two specimens in the British Museum are both males. This is a dark coloured species with pale legs, like *C. atricolor* Chapin and *nigricollis* Burm. It resembles the latter also in the long antennal club of the male and the clothing of scattered hairs on the elytra. The hairs, however, appear to be much longer and more evident in the North American species, according to Buchanan, and the clypeus of the male broader. This is rather long and narrow in the new form. The whole upper surface is shining, without dull elytra, as in *C. atricolor*,

the punctures of the pronotum fine and scattered and those of the elytra rather strong. The inner front claw of the male, which appears to be entire in both the other species mentioned, is here very long and exceedingly minutely cleft at the extremity.

Dyscinetus laevicollis sp. n.

Niger, nitidus, tarsis antennisque piceis, elongato-ovatus, fere nudus, capite subtiliter ruguloso, margine antico recto, reflexo; pronoto laevissimo, fere impunctato, marginibus lateralibus fortiter arcuatis, angulis anticis acutis, posticis nullis; scutello impunctato; elytris leviter striato-punctatis, seriebus geminatis quatuor serieque suturali, intervallis minute irregulariter punctatis; propygidio longe sat sparse ciliato, antice granulato, postice laevi, pygidio fortiter, basaliter crebre, punctato; metasterni medio laevi, lateribus fortiter punctatis; abdominis medio laevi, lateribus segmentique ultimi parte antica rugulosis; tibiis anticis acute tridentatis:

♂, tarsis anticis crassatis, ungue interiori fisso.

Long. 18–21 mm.; lat. max. 9·5–11 mm.

JAMAICA: Sweet River, Westmorland (*A. H. Ritchie*, Feb.); SAN DOMINGO.

Numerous specimens were taken in Jamaica. The species is recognisable by the extreme smoothness of its pronotum, which is almost completely devoid of punctures, although a few very minute ones can be detected with a lens. The puncturation of the elytra also, although distinct, is very light, but the pygidium is very strongly and, except in its posterior part, rather closely punctured. The propygidium is smooth and shining behind, with a single row of setigerous punctures, but anteriorly it is densely granular and bears a clothing of long but not at all close hairs.

Chalepides punctulatus sp. n.

Niger, nitidus, corpore subtus nonnunquam rufescenti, elongato-ovatus, nudus, propygidio longe ciliato; capite parce et minute punctulato, margine antico fere recto; pronoto parce, medio subtiliter, punctato, margine membranaceo medio paulo producto, lateribus regulariter arcuatis, angulis anticis acutis, posticis nullis; elytris leviter striato-punctatis, seriebus geminatis quatuor serieque suturali, intervallis minute irregulariter punctatis; propygidio crebre punctulato, longe flavociliato, pygidio brevi et laevi; metasterni et abdominis medio laevi, lateribus fortiter haud crebre punctatis:

♂, tibiae anticae dente tertio obtusissimo, tarso antico crasso.

♀, tibia antica acute tridentata.

Long. 19–20 mm.; lat. max. 10 mm.

COLOMBIA.

In this species the pygidium, although very short, is not almost obliterated. It is evidently closely related to the South Brazilian *C. eucephalus* Casey, which is very different in colour. It is also related to *C. dilatatus* Mann., another black form, with a similar puncturation, but it is much smaller than that, and the female of *C. punctulatus* is without the flattened lateral margins of the elytra conspicuous in *C. dilatatus*.

Casey has divided this genus into two and described the typical section (containing *C. barbatus* F., and *hydrophiloides* Burm.), as having the pygidium almost of the usual length, while the other has it very short. He was mistaken here, for in the *barbatus* group the pygidium is almost obliterated, as Burmeister has noted, the propygidium having encroached to such an extent that the pygidium is only seen as a narrow lateral band on each side.

Chalcasthenes gen. n.

Brevis, compactus, supra lepidis vestitus. Caput parvum, oculis magnis, prominentibus, clypeo angusto, excavato, antice rotundato. Antennae 9-articulatae. Mandibulae reductae, brevissimae, tectae, extus haud dentatae. Maxillae intus 6-dentatae, palpis sat longibus. Labium antice fortiter angustatum, integrum, palpis brevissimis, articulis 2 basalibus transversis. Pronotum latum, angulis anticis et posticis distinctis, obtusis, basi rotundato, haud marginato. Scutellum sat magnum, latum, apice rotundato. Elytra haud striati. Pedes graciles, tibiis anticis tridentatis, posterioribus 4 apice truncatis, paulo dilatatis, tarsis filiformibus; unguibus inaequalibus :

♂, pedum anticorum articulo tarsali 5° paulo crassato, ungue majori late bifido.

Genotype : *Chalcasthenes pulcher* sp. n.

Chalcasthenes pulcher sp. n.

Laete cupreus, elytris nigris, corpore supra et subtus lepidis vel setis albidis parum crebre vestito; breviter ovatus, convexus, supra, clypeo et scutello exceptis, lepidis minutis haud regulariter instructus; capite rugose punctato, clypeo antrorsum angustato, vix bilobato; pronoto parce punctato, punctis lepidiferis, linea mediana fere laevi, scutello nitidissimo, nudo, minute punctulato; elytris irregulariter subrugose punctatis, ubique lepidis modice crebre vestitis; pygidio corporeque subtus sat fortiter punctatis, setis brevibus albidis vestitis, metasterni medio laevigato et profunde sulcato; tibia antica extus tridentata, dentibus 2 apicalibus connatis.

Long. 12·5–13·5 mm.; lat. max. 7–8 mm.

Solomon Is. : Ulawa (*R. A. Lever*, May).

This little insect is probably more nearly related to the very isolated genus *Chalcocrates* than to any other yet known. It has in common with that genus the metallic surface, large prominent eyes, small narrow clypeus, similar mouth-organs and slender tarsi. But in numerous other important respects it differs greatly from *Chalcocrates* and there is no alternative to the formulation for it of a new genus. The peculiar adherent chalky matter forming broad bands upon the elytra of *Chalcocrates* is not present in *Chalcasthenes*, which, almost as unexpectedly, has a clothing of scales, absent, on the upper surface, only from the clypeus, the middle line of the pronotum and the broad scutellum. Scales are found also upon the legs, but they are replaced by short hairs upon the lower surface of the body. The shape of the body is very different, being very short, broad and convex. The antenna consists of nine joints, a single very short one, instead of two, immediately preceding the club, and the latter is rather long in the male. The clypeus is concave, its sides gradually converge from the eyes forward and the front edge is very feebly bilobed. The thorax is not evenly rounded at the sides, as in *Chalcocrates*, but angulated in the middle and convergent to front and rear, with very well marked front and hind angles. The scutellum is very smooth and shining, with strongly rounded sides and very blunt apex. The elytra are irregularly punctured, without trace of striation, and each puncture bears a pale elliptical scale. The propygidium has two longitudinal rows, converging towards the hind margin, of transversely placed tubercles, corresponding with the stridulatory files of *Heteronychus* and other genera. The pygidium has numerous large scale-bearing punctures. The legs are fairly long and slender, the front tibia has two closely-connate blunt teeth at the end and a third at a little distance, the middle and hind tibiae are dilated and feebly crenate, not digitate, at the end, with a strong oblique external carina near the middle. The tarsi are moderately long, but the

male, unlike that of *Chalcocrates*, has the last joint of the front tarsus a little enlarged and its inner claw deeply and widely cleft. The claws of the 4 posterior feet are short and their pulvilli are very short.

Oryctoderus nanus sp. n.

Niger vel rufo-niger, nitidus, corpore subtus breviter griseo-vestito, medio nudo, ovatus, convexus, capite plano, parce et minute punctato, tuberculo minuto utrinque instructo, clypeo haud brevi, antice leviter rotundato; pronoto laevissimo, toto marginato, lateribus medio angulatis, antice convergentibus, postice fere parallelis, angulis anticis acutis, posticis vix obtusis, scutello laevi; elytris parum profunde sed haud minute seriato-punctatis, lateraliter et postice laevigatis, epipleuris nullis; pygidio laevi, plano, opaco, lateribus extremis rugose punctatis, margine apicali longe ciliato:

♂. tibia antica acute bidentata, tarsi antici articulo penultimo intus crebre striato, ultimo magno ungueque interiori longo, minute fisso.

Long. 16–21 mm.; lat. max. 8·5–10·5 mm.

Admiralty Is.: Manus (*N. E. H. Caldwell*).

Only male specimens have been taken.

In certain respects this species links together the genera *Oryctoderus* and *Melanhyphus*. It has the well-marked hind angles to the thorax and the flattened pygidium in the male which distinguish the latter genus, but not the depressed bodily shape nor the unnotched mentum. It is much smaller than any yet described species of *Oryctoderus*, and is easily recognisable also by its distinctly but not closely punctured elytra. The pronotum is extremely smooth and shining and the head only bears minute scattered punctures, although these are a little stronger and closer immediately behind the raised front edge. There are also two minute tubercles, far apart, upon the clypeal suture, which is obliterated between them. The sides of the body are rather closely hairy beneath, but the middle is entirely smooth.

Oryctoderus clypealis sp. n.

Niger, nitidissimus, ovatus, convexus, corpore supra glabro, subtus breviter griseo-vestito, medio nudo, capite supra subquadrato, medio depresso, striolato, utrinque tuberculato, clypei margine antico recto, elevato, medio paulo altiori; pronoto laevissimo, lateribus antrorsum et retrorsum convergentibus, ante angulos posticos paulo sinuatis, his fere rectis; elytris antice parce punctatis, punctis juxta-suturalibus irregularibus, sat fortibus, reliquis subtilibus, partim ordinatis, elytrorum lateribus et apicibus toto laevibus, epipleuris nullis; pygidio brevissime setoso, basi et apice denudatis, margine postico longe ciliato:

♂, pedum anticorum tibia acute bidentata, articulo tarsali penultimo intus crebre striato, ultimo magno, ungue majori apice vix perspicue fisso.

Long. 23 mm.; lat. max. 12 mm.

Admiralty Is.: Manus (*N. E. H. Caldwell*, June).

A single male specimen.

Although I have not seen *Oryctoderus platygenioides* Fairm., it is no doubt closely similar to the present species. *O. clypealis* differs from it, according to description, in the sculpture of the head, which is not punctured but transversely striolate in the middle, in the entirely glossy pronotum, devoid of distinct lateral punctures, and in the very blunt apex of the scutellum (acute in *O. platygenioides*). The sculpture of the elytra appears to be similar to that of Fairmaire's species, the anterior half bearing rather scanty vestiges of a puncturation probably in course of disappearance, all but the punctures near

the suture, which are fairly large, being feeble. These strong punctures are irregularly scattered but most of the remainder form double rows. The pygidium is clothed with very short and inconspicuous hair, which is absent from its base and apex, and the posterior margin bears a fringe of long hairs.

O. platygenioides was assigned by Fairmaire to his genus *Melanhyphus*, but it appears to me to be very doubtfully congeneric with the type species, *M. kleinschmidti*.

Fairmaire also referred to *Melanhyphus* a species from the Philippine Is. which he called *M. semivelutinus*. This I believe to be the insect I recently described as *Peltonotus philippinus*. The two genera are undoubtedly related and lie on the borderland which unites the Dynastinae and Rutelinae, but the Philippine insect, in my opinion, was certainly not rightly placed in the genus *Melanhyphus*. The legs in particular show important differences and those of *semivelutinus* are entirely Ruteline in character. The tarsi are slender, the claws movable and unsymmetrical and the pulvillus small. The tarsi of *Melanhyphus* are short and compact, the claws fixed and equal, and the pulvillus is very long.

Oryctini.

Ligyrus herbivorus sp. n.

Nigropiceus, nitidus, subtus rufo-villosus, sat late ovatus, pedibus robustis, tibiis anticis fortiter tridentatis, capite plano, crebre ruguloso, antice attenuato, bidentato; pronoto antice ruguloso, medio et postice parce et minute, lateribus sat fortiter, punctatis, lateribus valde rotundatis, angulis anticis acutis, posticis obtusissimis; scutello laevi, apice paulo impresso; elytris grosse umbilicato-punctatis, punctis seriatis, seriebus haud geminatis, intervallis aequalibus, punctis post-humeralibus et ante-apicalibus irregularibus; pygidii lateribus rugulosis, medio sat minute punctato :

♂, pronoto antice profunde excavato, margine antico medio transversim elevato, cavitate vermiculato-ruguloso, postice medio paulo producto, pygidio convexissimo.

Long. 14–17·5 mm.; lat. max. 8–10 mm.

British Guiana : Georgetown (*C. Williams*, Dec.).

This was found in numbers on the Georgetown Golf Course, and a larva was taken at the roots of the grass. It is a rather short and broad species, with stout legs, and notable especially for the very coarse puncturation of the elytra. The punctures are annular, the centre of each being raised, and are in regular rows, except those behind the shoulders, where the rows become indistinguishable. The pronotum of the male is more deeply and widely excavated than in any other species of the genus known to me, the cavity in large specimens extending half-way to the base, and a slight angle is formed on each side of the middle of its hind margin. There is a blunt transverse elevation at the middle of the front margin. The elevation and cavity are only faintly traceable in the female. The front claws are alike in both sexes.

Bothynus tricornis sp. n.

Pl. 1, fig. 3.

Niger, politissimus, corpore subtus cum pedibus rufescentibus et fulvo-pubescentibus :

♂, pronoto profunde late excavato, margine antico medio antrorsum fortiter producto, processu furcato, excavationis lateribus antice oblique productis, processubus compressis, sat latis, apice furcatis, lobis fortiter divergentibus, equalibus.

Long. 31 mm.; lat. max. 18 mm.

S. Brazil : Bello Horizonte, Rio Velhao, Minas Geraes (*A. G. N. Chalmers*).

Only a single male example of this interesting form is at present known. It was found in the same locality as the closely related *B. glaucon* Perty (Pl. 1, fig. 2), from which it differs by the occurrence of a third bifurcate horn upon the pronotum, of equal length with the other two. The lateral horns are shorter and broader than those of specimens of *B. glaucon* of similar size, they are not directed straight forward but obliquely upward and their two terminal lobes are equal and strongly divergent. The thoracic excavation is very deep. The legs are very short and stout. The paramera of the aedeagus are slender and without the terminal dilatation of those of *B. glaucon*. In other respects the two forms are exactly similar.

Bothynus cylindricus sp. n.

Rufus, capite, pronoti medio, tibiis tarsisque obscurioribus, corpore subtus pedibusque longe fulvopubescentibus; convexus, cylindricus, fere parallelus, pedibus modice elongatis, tibiis anticis fortiter tridentatis, capite crebre rugoso, antice attenuato, acute bidentato, medio recte carinato; pronoti lateribus sat grosse punctatis, medio postice parce et minute, antice rugose punctato, hic plus minusve haud late impresso, margine antico tuberculo parvo medio munito, lateribus antice rectis, postice leviter arcuatis, angulis anticis acutis, posticis obtusis; scutello laevi; elytris quadruplice sat fortiter et crebre biseriato-punctatis, intervallis latis, similiter haud regulariter punctatis; pygidio subtiliter transversim striolato, medio parum dense :

♂, pronoti medio profunde haud late excavato, pygidio convexo, sublaevigato, tarsis anticis paulo crassatis, ungue interno late furcato.

Long. 18–19 mm.; lat. max. 10–10·5 mm.

S. Brazil : Minas Geraes, Rio de Janeiro (*A. Fry*).

This resembles *B. cribrarius* Fairm. and *laticifex* Burm., but the pygidium is not hairy and the joints of the front tarsi in the male are a little thickened and the inner claw broadly forked. (*B. minor* Steinh. appears also to be similar, but has the vertex of the head smooth and the pronotum broadly hollowed out.) The pronotum has a deep but not wide excavation, which is produced a little in the middle behind. In the female this is represented by a similar but more shallow depression. The pygidium is transversely striolate in the female, but in the male it is almost smooth except at the sides. In other respects the two sexes are alike. The head bears a straight transverse clypeal keel, the pronotum is rugose in the depression and strongly punctured at the sides, and the elytra show four narrow double rows of large, deep and close punctures, with similar but irregular punctures in the intervals.

Bothynus perforatus sp. n.

Piceus, corpore subtus rufescente, haud dense rufohirto; convexus, parum latus, nitidus, pedibus validis, tibiis anticis tridentatis, capite sat laxe rugoso, haud distincte carinato, antice attenuato, vix bifido, pronoto lateraliter haud fortiter, medio laevissime, punctato, lateribus vix rotundatis, medio obtuse angulatis, angulis anticis acutis, posticis obtusis, scutello laevi; elytris brevibus, postice latis, grosse et profunde seriato-punctatis, punctis annulatis, intervallis angustis, fere aequalibus, haud distincte punctatis; pygidio nitido, nudo, lateribus sat fortiter haud crebre punctatis, medio fere laevi, metasterni et abdominis lateribus rugosis, medio laevi :

♂, pronoto antice triangulariter excavato, laxe rugato, margine antico tuberculato; pedum anticorum unguibus aequalibus.

Long. 15–16 mm.; lat. max. 8·5–9 mm.

Trinidad; Venezuela; Colombia.

The British Museum contains six specimens. In this species there is a deep thoracic excavation in the male but none in the female. The stridulatory area upon the propygidium is less developed than usual in the genus. The fine close ridges are only present near the hind margin of the segment, which is not produced, and become broken up and scattered at a short distance from the margin. The average size is smaller than that of the other known species with the exception of the Patagonian *B. minor* Steinh., a differently sculptured insect, with costate elytra and rugose pygidium. In the present species the elytra bear rather uniform rows of large deep annular punctures, between which the narrow intervals are flat and unpunctured and of almost equal width. The pygidium is shining, very lightly punctured in the middle but more strongly at the sides.

Bothynus laevipennis sp. n.

Rufo-castaneus, capite, pronoto, tibiis tarsisque fere nigris, corpore subtus, metasterni et abdominis medio excepto, pygidioque fulvohirtis, maris autem hujus medio fere denudato: late oblongus, convexus, nitibus, pedibus validis, tibiis anticis tidentatis, capite crebre rugoso, carina debili clypeale leviter arcuata; pronoto profunde et late excavato, margine antico medio tuberculato, lateribus et basi fere laevibus, sed prope margines et angulos anticos bene punctatis, angulis posticis late rotundatis, scutello toto laevi; elytris laevibus, leviter obsolete lineato-punctatis; pygidio dense transverse strigoso:

♂, pygidii medio denudato, pedum anticorum unguibus aequalibus.

Long. 26–30 mm.; lat. max. 16–18 mm.

S. Brazil: Sabara, Bello Horizonte (*A. G. N. Chalmers*); San Paulo.

This is a member of the group to which *B. quadridens* Tasch., *laticifex* Burm., *ascanius* Kirby and *striatellus* Fairm., belong. As in *B. laticifex* the pygidium is very finely strigose and clothed with dense reddish pilosity, although in the male it is almost denuded in the middle. Unlike Burmeister's species, the male has the front claws equal and both sexes have a marginal tubercle to the pronotum. The upper surface is very smooth, with the exception of the closely rugose head and thoracic cavity and the sides of the thorax, which bear fairly strong punctures in the front angles and close to the outer edge. The elytra bear only vestiges of fine punctures, sometimes indicating two or three double lines. The thoracic cavity is very wide and deep in both sexes, its hind margin interrupted in the middle but not produced backward as in *B. ascanius*.

Cheiroplatys laevicollis sp. n.

Niger, nitidus, subcylindricus, corpore subtus piceo, haud dense rufo-hirto; capite brevi, crebre transverse ruguloso, clypeo fere semicirculari; pronoto laevi, lateribus et basi subtiliter parce punctatis, marginibus lateralibus fortiter rotundatis, angulis posticis nullis; elytris fortiter punctato-striatis, lateribus sat irregulariter, apicibus crebre punctatis; pygidio sat crebre et profunde punctato, linea mediana laevi:

♂, pronoti medio rotundatim excavato, cavitate laevi, margine antico leviter acute tuberculato, partis posticae medio fossa parva praedito, tibia antica lata, apice valde obtuso, margine externo ante medium leviter inciso.

Long. 16·5–18·5 mm.; lat. max. 9·5–10 mm.

North New Guinea: Sattelberg (*Bennigsen*).

One specimen in the British Museum and one in the Deutsches Entomologisches Institut, Berlin Dahlem.

In addition to species from Australia, Central America and the Southern United States, this genus is only known to include one from Norfolk Island and one from New Caledonia. It has not hitherto been recorded from New Guinea.

Although of rather small size, the present insect is evidently fairly nearly related to *C. latipes* and other Australian species. It is distinguished by the smooth pronotum. The head is closely transversely rugulose, the clypeus short and almost semicircular in shape. The thoracic cavity in the male (both specimens belong to that sex) is entirely devoid of punctures, almost round, extending from the front margin, in the middle of which there is a slight pointed tubercle, to well beyond the middle of the pronotum. Behind the cavity is a small but distinct rounded pit and the sides and base of the pronotum bear extremely fine scattered punctures. The elytra are deeply striate, except at the sides and apices, which are irregularly punctured, and the striae bear strong punctures. The pygidium is strongly and rather closely punctured, except along its median line, which is smooth.

Cheiroplatys amphioxus sp. n.

Fusco-rufus, corpore subtus magis rufescenti et lateraliter rufohirto; latus, robustus, convexus, politus, capite crebre rugoso, clypeo antice rotundato, a fronte linea recta elevata diviso; pronoto crebre rugoso, lateribus et basi crebre sat minute punctatis, marginibus lateralibus antice et postice fere rectis, angulis anticis acute productis, posticis obtusissimis, basi leviter rotundato; elytris laevissimis, punctis nonnullis apicalibus serieque suturali leviter impressa instructis; pygidio laevissime irregulariter punctato, lateribus paulo rugulosis:

♂, pronoto profunde excavato, cavitate crebre rugoso, transverse ovali, margine antice et postice medio tuberculato, tibia antica dente obtusissimo munita.

Long. 23–25 mm.; lat. max. 14–15 mm.

Queensland: Yarraman (*A. R. Brimblecombe*, Jan.).

Two male specimens, one of them bred in the laboratory.

This is a very well-marked species which appears to differ from all others known by having in the male a tubercle both in front of and behind the thoracic cavity. The latter is very large and deep, extending to within a short distance of the front and hind margins. The elytra are extremely smooth, with only the faintest traces of striae. Even the usually deep sutural stria is represented only by a feebly impressed series of minute punctures. It is a short and stout insect, resembling in some respects *C. excavatus* Lea, but with the sides and base of the pronotum closely punctured. The very blunt tibiae have only a single lateral tooth instead of two.

Papuana philippinica sp. n.

Nigra, nitida, corpore subtus rufo-piceo, parcissime rufo-setoso; elongata, sat angusta, parum convexa; capite laevi, parcissime et subtilissime punctato, tuberculis duobus minutis medio armato; pronoto laevi, haud cornuto aut excavato, lateribus rotundatis, angulis anticis subacutis, posticis obtusis, scutello laevi, lato; elytris fortiter striato-punctatis, stria subsuturali integra, impunctata, reliquis antice et postice abbreviatis, intervallo secundo lato, subtilissime punctato; pygidio crebre et fortiter punctato; tibiis anticis tridentatis.

Long. 19–20 mm.; lat. 10 mm.

Philippine Is.: Mt. Makiling, Laguna (*F. C. Hadden*, April, May).

Except for the thickened front tarsi and claws and the longer abdomen of

the male, the two sexes are alike and armed only with a pair of small pointed tubercles placed close together at the boundary of clypeus and forehead. The head and pronotum are very smooth and bear only very minute and scanty punctures. The elytra bear strong rows of punctures, not attaining the front or hind margin.

This species is nearly related to *P. lansbergei* and *P. badia*, but differs from both in having two tubercles instead of one on the head. *P. badia* differs from *P. lansbergei*, in addition to other features, by the thicker clothing of hair on the metasternum, the more rounded sides of the pronotum and its more pronounced hind angles, especially in the male.

Prof. Prell has suggested that *Metanastes* may be synonymous with *Papuana*, but the triangular clypeus like that of *Heteronychus* and differently shaped mandibles show that this is not so.

Dipelicus trifidus sp. n.

Niger, vel piceo-niger, glaberrimus, subtus cum pedibus rufus, fulvo-villosus; subcylindricus, valde convexus, capite antice verticali, utrinque acute angulato, supra cornuto; pronoto medio valde dilatato, angulis omnibus obtusis; elytris modice elongatis, postice vix dilatatis, stria juxta-suturali impressis, marginibus posticis leviter subrugosis; pygidii lateribus leviter subrugosis, medio glabro :

♂, capite cornu acuto, retrorsum curvato armato, pronoto late et profunde excavato, cavitate carina acuta delimitata, hac medio antrorsum producta, bifida, tuberculo erecto instructa :

♀, capite supra bilobato.

Long. 30–32 mm.; lat. max. 16–17 mm.

British New Guinea : Yule I. (*R. V. Oldham*, Nov.).

This new species is closely related to *D. quadrituber* Fairm. (renamed *alveolatus* Hell. in 1897 and probably the same as the earlier named *nasutus* Bates, described from a single female mistaken by Bates for a male).

The pronotum of the male, instead of a central horn flanked by a shorter process on each side, as in that species, bears a bifurcate median process directed forward, with an erect tubercle upon it near its base. The thoracic cavity is very deep and wide, extending in well-developed specimens to the front angles, from which a very sharp enclosing ridge extends to the dorsal horn. The entire upper surface, as in the allied species, is extremely smooth. The pronotum in both sexes is more angularly dilated at the sides than that of *D. quadrituber*, and its hind angles are very obtuse but not rounded off. The elytra are a little longer and more parallel-sided, not appreciably dilating behind.

Dipelicus salomonensis sp. n.

Ferrugineo-rufus, glaberrimus, subtus paulo pallidior, rufo-villosus; ovatus, convexus, capite antice verticali, utrinque obtuse angulato, margine antico leviter bilobato; pronoto impunctato, lateribus valde rotundatis, angulis anticis haud acutis, posticis valde obtusis, basi trisinuato; scutello laevi; elytris fere impunctatis, postice leviter ampliatis, stria juxta-suturali sat fortiter impressis, apicibus leviter rugulosis, pygidio brevi, laevissimo; pedibus brevibus, tarsis sat gracilibus, pedum posticorum articulo basali quam latitudinem paulo longiori :

♂, capite cornu acuto brevi armato, pronoto antice late excavato, cavitatis margine postico trituberculato, tuberculis lateralibus obsolescentibus :

♀, capitis carina supra laevissime emarginata.

Long. 25–31 mm.; lat. max. 13–15 mm.

Solomon Is.: Bougainville, Kieta (*J. L. Froggatt*, March); San Cristobal.

This is a rather light coloured and very glossy species closely resembling *D. quadratifer* Hell., but the thoracic cavity in the male is strongly transverse, confined to the anterior half of the pronotum and not limited at the sides by a ridge as in that species. The narrow rugulose posterior margin of the thorax is also absent. The stridulatory area extends to the hind margin of the propygidium and the tarsi, especially those of the middle legs, are a little longer than those of *D. quadratifer*.

D. salomonensis is also closely related to *D. integriceps* Fairm. with the type of which, in the Paris Museum, it has been kindly compared for me by Monsieur Lesne. The upper surface is smoother than that of *integriceps*, the pronotum is without the punctures and plications near the front margin on each side and the elytra are devoid of the linear series of granules found in Fairmaire's species. In the latter the lateral tubercles of the male pronotum are absent and the median tubercle is longer and sharper.

Temnorrhynchus.

The species of this genus are confined to Africa and Madagascar, with one exception, *T. baal* Reiche. This was originally recorded from Syria, but it has a wide range extending from Macedonia to Central Arabia and the Sudan. African examples were redescribed by Fairmaire under the name *T. sennariensis*.

One species of the genus, known by many different names, is very abundant in Africa. I referred to it in 1908 as *T. antiochus* Fairm. As *T. diana* Beauv., Kolbe gave names to four local phases of it. But the oldest name is *coronatus* F., the type of which, a rather worn female specimen in the British Museum, was supposed by Fabricius to have come from Java. Peringuey described the species again as *T. faunus*.

Although extremely closely related to *T. coronatus* F., it seems justifiable to regard the pale coloured West African form here described as a distinct species.

Temnorrhynchus flavipennis sp. n.

Rufo-flavus, capite, pronoto, tibiis partim tarsisque infuscatis; cylindricus, modice elongatus, capite transverse ruguloso; pronoto grosse rugoso, scutello laevi; elytris sat nitidis, minute parum profunde punctatis, seriebus geminatis tribus indistinctis, lateribus impunctatis; pygidio laevi, punctis piliferis prope basin sparsutis:

♂, capite supra acute bicornuto; pronoti dimidio antico sat profunde rotundatim excavato, cavitatis margine postico medio acute tuberculato.

Long. 18–23 mm.; lat. max. 9–13 mm.

N. Nigeria: Bagana (*W. Scott Macfie*, Jan.).

S. Nigeria: Onitsha (*J. A. de Gaye*, July), Asaba.

Six specimens are all males.

The bright yellow elytra and lower surface, contrasted with the dark head and pronotum, distinguish this at first sight from all other known forms. In other respects it is not easily separable from *T. coronatus*. The cavity of the male thorax is deeper and scarcely extends beyond the middle of the pronotum, whereas in all but very poorly developed males of the common species it extends farther back. The paramera of the aedeagus in *T. flavipennis* taper gradually and evenly from the base to near the apices, where they swell into pear-shaped tips. In *T. coronatus* although the aedeagus is not constant in shape, the basal part of the paramera is shorter, the dilated apices are larger and the narrowest part is near the middle.

Temnorrhynchus elongatus sp. n.

Rufo-niger vel fusco-rufus, corpore subtus pedibusque rufis, cylindricus, sat angustus, politus, capite leviter transverse ruguloso, supra late, haud fortiter aut acute emarginato; pronoti lateribus grosse rugosis, medio laevi; elytris politissimis, stria utrinque suturali; pygidio medio granulis setiferis haud crebre praedito, basi et apice laevigatis; pedibus posticis crassissimis, tarsis calcaribusque tibialibus latissimis:

♂, capite supra utrinque angulato, vix cornuto, pronoto antice paulo excavato, cavitatis margine postico medio minute tuberculato:

♀, capite supra haud utrinque angulato.

Long. 20–22 mm.; lat. max. 11 mm.

S. Africa, Pondoland: Port St. John (*R. E. Turner*).

This species is distinctly more elongate than most of its congeners and the elytra are extremely smooth and glossy. It is nearly related to *T. clypeatus* Kl. and *coronatus* F., but is of a narrower shape than the former and the spurs of the hind tibia are more broadly dilated. *T. coronatus* F., of which the type (a female) is in the British Museum collection, differs in the sculpture of the upper surface. The head of *T. elongatus* is lightly and transversely rugulose, its upper margin very bluntly excised. That of *T. coronatus* is deeply sculptured and distinctly punctured in the posterior part. The posterior excision is much deeper. The pronotum of the new species is coarsely rugose, without punctures, and smooth in the middle. That of *T. coronatus* is distinctly punctured in the middle and coarsely pitted at the sides.

Temnorrhynchus erectilobus sp. n.

Castaneus, nitidus, capite pronotoque paulo obscurioribus, ovalis, haud glaber, capite antice crebre rugoso, supra arcuatim emarginato; pronoti lateribus crasse rugosis, scutello lato, laevi; elytris distincte sed haud profunde striato-punctatis, striis geminatis, postice obsoletis, intervallis leviter punctatis; pygidio antice et postice sublaevi, medio granulis setiferis nonnullis praedito:

♂, capite acute bicornuto, cornubus parallelis, pronoto medio parum profunde excavato, cavitate postice carina longitudinali divisa, illius margine postico tuberculo erecto armato.

♀, pronoti medio fortiter punctato.

Long. 20 mm.; lat. max. 11–11·5 mm.

Madagascar: Nossi-bé.

The British Museum contains a specimen of each sex.

Four species of the genus *Temnorrhynchus* are at present known to inhabit Madagascar. Three of them are extremely smooth and one, *T. grandicornis* Fairm., has the pronotum entirely smooth and the elytra strongly punctured. *T. erectilobus* has the pronotum coarsely rugose at the sides and punctured in the middle (at the base only in the male) and the elytra punctured. The pygidium is rather smooth, with a horizontal series of scanty setigerous granules across the middle. The head-plate is strongly rugose and roundly emarginate above. In the male it is produced into short but sharp horns, and the thoracic excavation is not very deep but is divided behind by a longitudinal ridge. The tubercle in the middle of the hind margin of the cavity in this sex is strong and erect.

Dichodontus punctipennis sp. n.

Pl. 1, fig. 1.

Niger, sat nitidus, subtus rufo-hirsutus; robustus, pronoto grosse punctato-rugoso, postice medio fere laevi, lateribus medio obtuse augulatis, deinde antrorsum convergentibus,

rectis, postice parallelis, fere rectis, elytris fortiter punctatis, punctis partim in lineis geminatis ordinatis :

♂, capite cornu longo, simplici, valde arcuato armato; pronoto postice elevatione lato, antice truncato, paulo producto munito, parte retusa antica medio laevi; pygidii basi et lateribus sat subtiliter rugosis, medio inaequaliter punctato :

♀, capite postice tuberculato, pronoto crebre rugoso, antice vage impresso; pygidio aequaliter et subtiliter rugoso.

Long. 27–33 mm.; lat. 16–18 mm.

Malay Peninsula : Perak, Taiping (*C. Wray*), Penang (*G. E. Bryant*, Oct.).

This species is easily distinguished by its strongly, although not very deeply, punctured elytra. It is rather elongate and parallel-sided. The pronotum is not very wide, its sides are rounded in the middle, not abruptly angulate, and nearly straight to the front and hind angles. The female has a small tubercle upon the head and a very slight depression, without any definite margin, at the front of the pronotum. The male is armed with a long cephalic horn and the thoracic hump is only feebly produced and broadly truncate at its front margin.

Prell has maintained (1912, *Coleopt. Rundsch.*, **1** : 103) that the Sumatran, Bornean and continental examples, which I refer to *D. coronatus* Burm., constitute three separate species, and has introduced a new name, *angulatus*, for the first. The T-shaped aedeagus of the male, which appeared to him sufficient to distinguish this, is in reality characteristic of *D. coronatus* throughout its range.

Oryctes capucinus sp. n.

Pl. 1, figs. 7 & 8.

Rufopiceus, capite pronotoque nigris; robustus, nitidissimus, corpore subtus parce et breviter setoso, clypeo antice late emarginato, prothorace antice valde attenuato, elytris politis, haud angustis, dimidio interiori stria punctata punctisque minutis haud profundis praedito, dimidio exteriori subtilissime punctato; tibia antica tridentata, media et postica apice bidentatis :

♂, capite rugoso, cornu longo, fortiter recurvo, compresso, apice acuminato armato; pronoti lateribus antice rectis, convergentibus, angulis sat acutis, postice leviter rotundatis, angulis obtusis, dorso postice nitido, valde elevato, medio triangulariter producto, parte antica tota retusa, crebre rugosa, basi trisinuato, anguste rugoso; pygidio convexo, polito, basi anguste ruguloso et setoso.

Long. 50 mm.; lat. max. 24 mm.

Portuguese Congo : Caconda (*R. Swainson-Hall*).

I have seen only a single male specimen. The species differs from all others known to me in the triangular process from the strongly elevated posterior part of the thorax. The body is rather smooth and shining above and beneath, the hairy clothing of the lower surface very short and scanty. The cephalic horn is long, strongly curved, sharply pointed and punctured or rugose. The pointed thoracic process is very smooth and shining and extends well past the middle of the thorax. It is deeply hollowed beneath and there, like the whole anterior part of the pronotum, closely rugulose. The elytra are very smooth and shining, with fine scattered punctures, parallel-sided but not very elongate.

A female specimen of *Oryctes tarandus* Oliv. in the British Museum bears the name " Juba " in the handwriting of Kirby, and the label is in all probability that of the latter's original specimen of *Scarabaeus juba* (1818, *Trans. linn. Soc. Lond.*, **12** : 459). The description, however, does not apply to the

Oryctes and seems to indicate that the type, which should be found in the Museum collection but appears to be lost, was a specimen of *Dasygnathus australis* Boisd., which name must be superseded by Kirby's.

Coelosis denticornis sp. n.

Pl. 1, figs. 5 & 6.

Rufo-castaneus, sat nitidus, modice latus, capite rugoso, antice vix bidentatus, mandibulis latis, extus leviter crenatis haud dentatis; pronoti dorso minute, lateribus fortiter et rugose punctatis, marginibus lateralibus valde rotundatis, antice fere rectis, angulis anticis acutis, posticis obtusis; elytris minute seriato-punctatis, vix striatis, intervallis parce minutissime punctulatis; pygidio crebre ruguloso;

♂, capite cornu recurvo, postice unidentato, armato; pronoto medio excavato, excavationis margine postico carinato, utrinque antrorsum producto, fundo antice parce punctato, nitido, postice crebre ruguloso; pygidio leviter ruguloso, nudo;

♀, capite postice minute tuberculato; pronoto toto convexo; pygidio minute ruguloso, breviter sat dense rufo-hirto.

Long. 28–33 mm.; lat. max. 15·5–18 mm.

Argentina: Villa Ana, Santa Fé Prov. (*K. J. Hayward*, Jan.–Apr.), Corrientes.

This has the general form of *C. bicornis* F., but the surface is more smooth and shining and the puncturation finer. The mandibles are not dentate, as in that species, and the clypeus is not distinctly cleft at the apex. The punctures of pronotum and elytra are finer and the latter are not distinctly striate, although there are regular lines of punctures. The legs are rather stouter and the teeth of the front tibiae are much shorter.

In the male the cephalic horn has a sharp tooth behind. In *C. bicornis* there is a slight posterior flange present in very large specimens only. The thoracic cavity in that species is coarsely punctured, but in *C. denticornis* it is rather sparingly punctured in the middle and closely rugulose behind and at the sides.

Coelosis nitidus sp. n.

Rufo-castaneus, nitidus, modice latus, capite rugoso, antice acute bidentato, mandibulis extus fortiter tridentatis; pronoti dorso minute, lateribus fortiter rugose punctatis, marginibus lateralibus rotundatis, antice leviter sinuatis, angulis anticis acutis, posticis obtusis; elytris leviter striatis, striis minute punctatis; pygidio crebre ruguloso:

♂, capite cornu recurvo, valde arcuato, haud dentato, armato; pronoto medio excavato, excavationis margine postico carinato, utrinque antrorsum producto, fundo antice punctato, postice toto laevi.

Long. 27 mm.; lat. max. 14 mm.

Argentina: Estancia Biscacheras, Entre Rios (*G. E. Bryant*, Jan.).

A single male specimen was found.

C. nitidus is very nearly related to *C. denticornis*, and, like it, is smoother and more shining than the other species of the genus. It differs in its sharply toothed mandibles, the acutely bidentate clypeus, the cephalic horn of the male not toothed behind and the very smooth and shining posterior part of the thoracic cavity in the same sex. The elytra are still more shining than those of *C. denticornis*. The aedeagus is conspicuously different in shape, the paramera being very narrow and parallel for a short distance from the tip, the sides then strongly diverging. In *C. denticornis* they dilate regularly but very feebly from apex to base.

Phileurini.

Although numerous species of *Cryptodus* have been described, the constant external difference between the sexes has usually been overlooked. The sexes can be easily distinguished by the shape of the pygidium. In the male it is always convex, the abdomen is correspondingly shortened beneath, the last sternite not produced and sometimes a little emarginate. In the female, the pygidium is rather flat and the last sternite is more or less pointed at the end. *C. costulipennis* and *fraternus* of Fairmaire, of which M. Oberthür has kindly lent me the types, are ♂ and ♀ respectively of a single species.

The genus has three well-marked sections—A, the most numerous, in which the mentum is strongly excised at its hind margin forming two pointed processes; B, in which the mentum is straight, slightly rounded or only feebly excised behind, the two pointed processes absent, and C, in which the mentum bears a prominent rounded lobe behind. In section B, the males, in addition to the convex pygidium, have the front tarsi modified. They are short and thick and the inner claw is dilated, bent and furnished with a broad lobe at the base. In sections A and C the tarsi are usually alike in both sexes, but *C. concentricus* Lea, belonging to section A, forms a link with section B, having the front tarsi of the male modified.

The two following species belong to section B. It is not impossible that they may ultimately be found to be local forms of one wide-ranging species, *C. tasmannianus* Westw., but the numerous typical examples of that examined appear to show that it is confined to Tasmania and Victoria.

Cryptodus reginae sp. n.

Niger, nitidus, corpore subtus pygidioque rufopiceis; paulo depressus, elongatus, capite ubique haud dense transversim ruguloso, leviter bituminuloso, margine antico fere recto; pronoto sat fortiter et sparsim punctato, medio anguste sulcato, lateribus antice et postice contractis, fere rectis, angulis anticis acutis, posticis obtusis; elytris sat crebre varioloso-punctatis, utroque costis tribus vix elevatis praedito, interstitiis haud punctulatis; pygidio haud dense transversim ruguloso, apice fortiter punctato; corpore subtus ubique vermiculato-ruguloso, mento postice rotundato; tibiis anticis tridentatis:

♂, pygidio valde convexo, tarsis anticis crassatis, ungue interno valde inflexo, lato, basi lobo ovali praedito.

Long. 21–22 mm.; lat. max. 10–11 mm.

Queensland.

A specimen of each sex was taken during the voyage of H.M.S. "Challenger."

Nearly related to *C. tasmannianus* Westw. and *C. ater* Lea and of similar appearance, rather broad and flat, with shining black upper surface, but the lower surface is deep red. It differs from *C. ater* in having the mentum entire behind and not excised, from *C. tasmannianus* in having larger and rather less numerous punctures upon the pronotum and elytra and the pygidium closely reticulate and not punctured, and from both in having distinct, though obtuse, hind angles to the pronotum. The scape of the antenna is sharply triangular, as in *C. tasmannianus*. The thickened front tarsi and lobed inner claw of the male are also practically of the same form. The lower surface is rather closely sculptured.

Cryptodus elongatus sp. n.

Niger, nitidus, angustus, paulo depressus, capite sat crebre transversim ruguloso, medio late impresso, leviter bituberculato, margine antico fere recto; pronoto parum fortiter aut

crebre punctato, medio anguste sulcato, lateribus antice contractis, fere rectis, angulis acutis, postice leviter arcuatis, angulis rotundatis; elytris sat crebre varioloso-punctatis, utroque costis tribus angustis paulo elevatis praedito, interstitiis haud punctulatis; pygidio crebre transversim ruguloso, apice fortiter punctato; metasterno grosse punctato, abdominis subtus medio parce punctato, lateribus rugulosis, mento crebre punctato, postice rotundato; tibiis anticis tridentatis:

♂, pygidio valde convexo, tarsis anticis crassis, ungue interiori valde inflexo, lato, basi lobo rotundato praedito.

Long. 17–18 mm.; lat. max. 7–8 mm.

New South Wales; Victoria.

C. elongatus closely resembles *C. reginae* and *tasmannianus*, but is smaller and relatively narrower than either. The sculpture of the upper surface is almost the same, but the punctures of the pronotum are rather larger and fewer than in *C. tasmannianus*. The hind angles are rounded, as in that species. The metasternum and abdomen are closely rugulose at the sides and finely, not closely, punctured in the middle.

The male, as in the allied species, has the front tarsi thickened and the inner claw strongly bent and broadly lobed at the base.

I recorded in 1908 reasons for attributing the name *Phileurus vervex* to an Argentine species and described as *P. burmeisteri* the Brazilian form supposed by Burmeister to be the female of this species. Kolbe has since published further remarks upon the form "in Argentina and Montevideo" which he regards as Burmeister's species, including a description of the aedeagus. He was evidently unaware that there are two closely similar Argentine species, in one of which the pygidium is much smoother than in the other and the pronotum much less punctured. Burmeister's expressions "bis zur Mitte punktirten Seitenhalften" and "Afterdecke glatt" seem clearly to indicate the former, which is found commonly at Montevideo and Buenos Ayres, while the aedeagus described by Kolbe is that of the latter, which I propose to name *Archophileurus santafeanus*. The aedeagus of the true *A. vervex* is entirely different and of simple tubular shape. It is parallel-sided, smooth and evenly rounded, the paramera not keeled at the suture nor sharply produced at the tip. The three species may be distinguished as follows:—

1(4). Pygidium swollen in the basal part in both sexes, not very coarsely punctured.
2(3). Pygidium very smooth in the middle, lightly punctured at the sides: sides of pronotum finely punctured in the anterior half; ♂, aedeagus with the paramera not separated, parallel-sided . . . *vervex* Burm.
3(2). Pygidium rather evenly but not coarsely punctured; sides of pronotum strongly punctured to beyond the middle; ♂, aedeagus keeled, paramera not separated, dilated behind . . . . . *santafeanus* sp. n.
4(1). Pygidium gently and uniformly convex in both sexes, very coarsely punctured; ♂, aedeagus with the paramera widely separated in front . . . . . *burmeisteri* Arr.

Archophileurus santafeanus sp. n.

Niger vel piceo-niger, nitidus, corpore subtus cum pedibus rufovilloso, subcylindricus, haud depressus, capite antice acuminato, reflexo, pronoto medio sulcato, antice haud minute punctato, post medium laevi; elytris fortiter punctato-striatis, postice confuse punctatis; pygidio sat equaliter haud fortiter punctato, basi tumido:

♂, capite bicornuto, pronoto antice rotundatim excavato; pygidio convexo:
♀, capite bituberculato, pronoto anguste sulcato, pygidio basi valde tumido.
Long. 16–22 mm.; lat. max. 9–11·5 mm.

ARGENTINA: Villa Valeria, Sta Elena, Entre Rios, Rio San Javier, Santa Fé (*G. E. Bryant*, Dec., Jan.).

Archophileurus darwini sp. n.

Rufo-piceus, pedibus longe fulvopilosis; ovatus, convexus, nitidus, capite rugoso, utrinque transversim carinato, clypeo ruguloso, breviter acuminato, apice reflexo; pronoto nitido, parce et minute punctato, dorso haud sulcato, lateribus antice fere rectis, postice arcuatis, angulis posticis nullis, scutello fere semicirculari, laevi; elytris profunde seriato-punctatis, serie suturali postice striata, aliis abbreviatis, intervallis laevibus; pygidio polito, punctis minutis nonnullis piliferis; metasterni medio laevi, lateribus punctatis, breviter fulvopilosis; pedibus brevissimis, robustis, tibia antica fortiter tridentata, posterioribus 4 apice late truncatis.

Long. 12 mm.; lat. max. 6 mm.

URUGUAY: Maldonado (*Charles Darwin*).

A single male specimen of this small species was taken by Darwin during the voyage of the "Beagle" one hundred years ago, and is the only example known to me. It is similar in size and shape to *A. fimbriatus* Burm. but broader, with shorter and stouter legs and very smooth pronotum, bearing only fine, scanty punctures and entirely devoid of median groove. The elytra also are rather smooth, but bear rows of punctures, which are of moderate size upon the anterior half, disappearing upon the posterior half laterally and a little farther back dorsally, except the sutural series, which attains the apex in the form of a deep stria. The pygidium is very smooth, but has a very few minute punctures carrying fine erect hairs.

The genus *Archophileurus* was introduced by Kolbe for two species, *A. cribrosus* Lec. and *fimbriatus* Burm., and distinguished from *Amblyphileurus* only by having blunt mandibles and pronotum without or almost without a median groove. The new species has the pronotum entirely without a groove and the head, as in the typical *A. cribrosus*, bears two transverse ridges. On the other hand the mandibles are acute, as in *Amblyphileurus*, so that there is a link between the two groups and it appears to me necessary to unite them under the first name.

Hemiphileurus.

Hemiphileurus cylindroides Bates, ranges, according to Bates, from Honduras to Panama. But the specimens studied by him actually belong to two closely related species, of which one, including the example from Rio Susio selected as typical and figured by the author, appears to be confined to Costa Rica. The more wide-ranging form is less coarsely punctured and may be called **H. fraternus** sp. n. The two species may be distinguished as follows:—

Pronotum coarsely and equally punctured, with broad median groove; elytra very coarsely and closely punctured; hind tibia with long lateral spine; ♀, pygidium coarsely punctured; ♂, aedeagus feebly dilated behind. Costa Rica *cylindroides* Bates.

Pronotum more finely punctured, smooth behind, with narrow median groove; elytra less coarsely punctured, hind tibia with short lateral spine; ♀, pygidium densely rugose; ♂, aedeagus broadly dilated behind. Honduras to Panama . . . . . *fraternus* sp. n.

Homophileurus paraguayanus sp. n.

Niger, nitidus, compactus, convexus, haud deplanatus, capite rugoso, antice acuminato, reflexo, vix producto, cornubus lateralibus marginalibus, rectis, acuminatis, parte postica profunde excavato; pronoto antice retuso, modice punctato, margine superiori bituberculato, postice laevi, profunde sulcato, sulco, area utrinque antica discoidali angulisque anticis grosse subrugose punctatis, angulis anticis acutis, lateribus fortiter rotundatis, angulis posticis obsoletis; elytris brevissimis, grosse et profunde punctato-striatis, apicibus fortiter haud seriatim punctatis; pygidio laevi, parce et minute punctato; metasterni medio laevi, lateribus grosse et crebre punctatis; abdomine subtus laevi, segmenti ultimi basi ruguloso.

Long. 25–26 mm.; lat. max. 12·5–13·5 mm.

Paraguay: Asuncion (*E. G. Kent*).

This species represents the farthest extension known southwards of the genus *Homophileurus*, most of its members being found north of the Equator. It is a small, short and compact form, with short, pointed and erect marginal horns and sharp but very short apical angle to the head. It nearly resembles *H. 4-tuberculatus* Beauv., but is shorter and more convex. The legs are stout, the front tibiae broad and distinctly 4-dentate. The upper margin of the retuse anterior part of the pronotum bears only two tubercles and the hind angles of the prothorax are completely rounded off. The pronotum is very deeply grooved, the elytra bear large annular punctures in deep striae and the pygidium is convex and finely punctured.

The two sexes differ little, but the last ventral sternite is shorter in the male.

Actinobolus angustus sp. n.

Pl. 1, fig. 4.

Rufo-piceus, capite tarsisque fere nigris, elongatus, subcylindricus, convexus, nitidus, capite punctato-rugoso, clypei margine fortiter reflexo, quinque-lobato; pronoto antice crebre punctato-rugoso, postice parce punctato, medio sulcato, sulco rugose punctato, antice obliterato, lateribus fortiter rotundatis, antice rectis, angulis anticis acutis; elytris sat fortiter punctato-striatio, pygidii basi sat minute punctato, apice laevi, metasterno subtiliter punctato, dense haud longe rufo-villoso; tibia antica dentibus tribus fortissimis quorum apicali longo quartoque minuto armata:

♂, abdominis segmento ultimo ventrali brevi.

♀, „ „ „ „ triangulari.

Long. 23 mm.; lat. 10·5 mm.

S. Brazil: S. Paulo (*A. Fry*), Montevade (*E. Luja*), Mus. Luxemburg.

A. angustus is a little more elongate and cylindrical than *A. radians* Westw., pitchy-black in colour and very shining. The pygidium in both sexes is very smooth and shining upon its apical half, with rather scattered and not very large punctures in the anterior half.

In describing *Actinobolus talpipes*, Ohaus has indicated his type as a female. It appears to me probable that it is a male, but that Ohaus, not finding the marks of that sex usually to be found in the Dynastinae, assumed it to be a female. In this group the sexes differ little and the last ventral segment of the male is not excised, although shorter than that of the female.

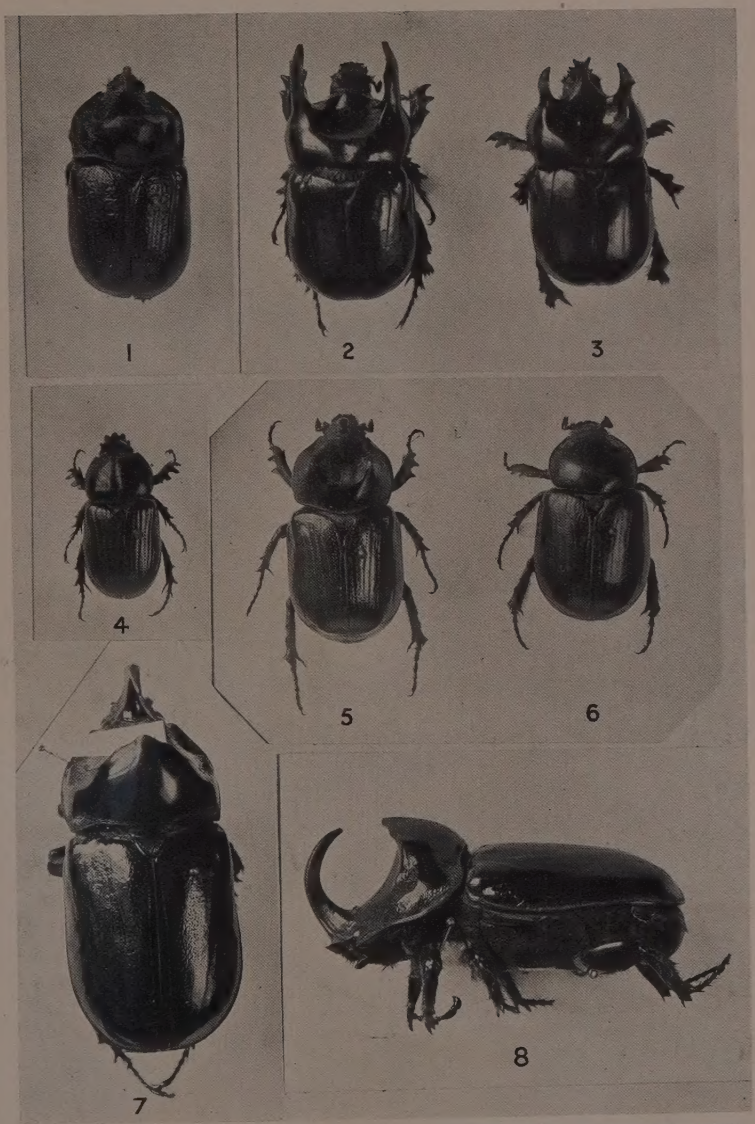
The type of *A. talpipes* is described as having the propygidium and pygidium closely covered with coarse annular punctures, but a female specimen in the British Museum, agreeing with the description in all other respects, has the

pygidium very smooth, with a few fine punctures in the anterior angles only. The type of *A. radians* Westw. and a specimen of the same species in the British Museum collection are female and male respectively. In the former the abdomen is convex beneath, the hinder edge of the last segment is uniformly rounded and the pygidium is finely punctured on its anterior half and smooth and shining at the apex. In the male the abdomen is contracted and arched, the last segment is a little truncated and the pygidium coarsely punctured from base to apex.

Explanation of Plate 1.

Fig. 1. *Dichodontus punctipennis* sp. n., male.
2. *Bothynus glaucon* Perty, male.
3. *B. tricornis* sp. n., male.
4. *Actinobolus angustus* sp. n.
5. *Coelosis denticornis* sp. n., male.
6. *ditto*, female.
7. *Oryctes capucinus* sp. n., male.
8. *ditto*, lateral view.

All figures are natural size.



ENGRAVED BY STAR ILLUSTRATION, LONDON.

Dynastine Coleoptera. Natural size.